

LEED

at

Marshall

Building 4600

NASA – Marshall Space Flight Center



Building 4346

NASA – Marshall Space Flight Center



Building 4601

NASA – Marshall Space Flight Center

- **Recently Began Construction**
- **Planned LEED Silver**

Building 4602

NASA – Marshall Space Flight Center

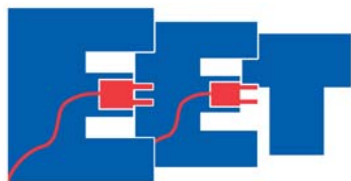
- **Recently Began Design**
- **Planned LEED Silver**

HISTORY

- Planning
- Design
- Construction
- Operations (*discussed later*)

RESULTS

- **Good overall**
- **Minor problems encountered**



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Leadership



Environmentally sensitive construction practices make the 139,000 square-foot NASA Building 4600 at George C. Marshall Space Flight Center a model for sustainable design. The building's east-west orientation and sun shades minimize sun exposure, while an open floor plan allows for an abundance of natural light. Other energy-saving features include light sensors, photovoltaic roof panels, and a white, reflective ENERGY STAR® roof membrane. Waste water from the campus chiller plant is distributed to a retention pond for irrigation, saving 3.5 million gallons of potable water annually. More than 85 percent of construction waste was re-used or recycled, and 20 percent of the building material is made of recycled content. Low-VOC materials, efficient air flow, and greater access to daylight and views provide a healthy and productive interior work environment.

Building 4600
Marshall Space Flight Center
Huntsville, Alabama

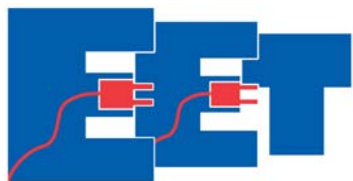


YOU HAVE
the POWER™

National Aeronautics and Space Administration
Federal Energy Management Program

For more information on how you can get involved in the
You Have the POWER campaign, visit the FEMP Web site at www.eere.energy.gov/femp.

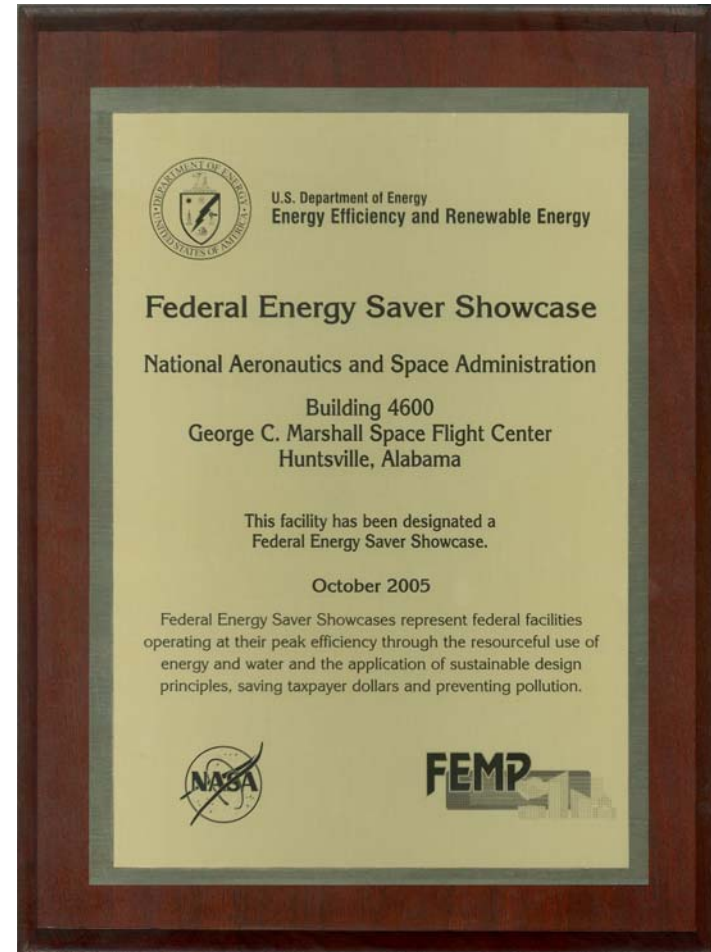


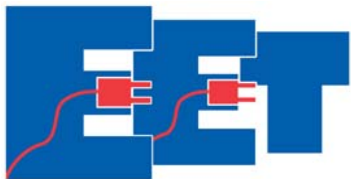


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Positive Features

- **Federal Energy Showcase Award – 2005**
- **LEED Silver Certification – February 2006**
- **Aesthetics Not Compromised**
- **Positive Feedback From Occupants**
- **Majority Of Occupants Have An Outside View**
- **Occupants Basically Satisfied**





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Positive Features

- **Design flexibility For Responsive Comfort Control**
- **Low Emitting Materials Installed**
- **Systematic Engineered Air Filtering System**
- **Optimization Of Energy-Efficiency Throughout**
- **Over 35KWh provided directly to the grid from solar roof panels**
- **Operates at 50% of the electrical usage of similar office buildings**
- **Recycled over 85% of all construction waste**
- **Meeting Individual Comfort Needs Attained Easier**



Problems Encountered

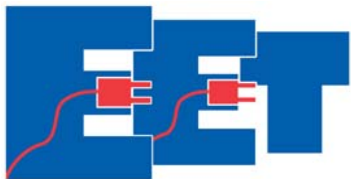
- No listing of replacement materials to maintain operational integrity
- No specified contamination level for replacing furnishings
- Custodial Services required restructuring for Green-Cleaning to avoid added contamination
- Training of maintenance personnel to avoid contamination during cleanup after maintenance repairs
- Little of no known information from professional sources about O&M of LEED buildings (*buildings normally operate 40+ years*)

Problems From Oversights

- During planning and design – building users were not sure of “all” equipment load requirements
- This typically happens in electronic equipment rooms and/or rooms dedicated to computer equipment

Possible Solution OF Oversights

- Design all equipment rooms with the capability of operating individually during non-core hours



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Q&A